

REMARKS

Claims 1-20 are pending in this application. Claims 10 and 13-20 have been withdrawn as directed to subject matter that was not elected in response to the Restriction Requirement mailed July 21, 2006.

Independent claim 1 has been amended to recite

- (a) that the thermosetting phenol-aldehyde resin has all (rather than “at least one of”) of the stated minimum M_n , M_w , and M_z values (see, for example, paragraph [0027], lines 5-7 for support); and
- (b) that the ketone-aldehyde cure promoter is present in an amount from about 2% to about 15% by weight of the combined amounts of the phenol-aldehyde resin and the ketone-aldehyde cure promoter (see, for example, paragraph [0032], lines 22-23 for support).

Dependent claim 11 has been amended to recite that the ketone-aldehyde cure promoter is present in an amount from about 3% to about 9% by weight of the combined amounts of the phenol-aldehyde resin and the ketone-aldehyde cure promoter (see, for example, paragraph [0032], lines 23-25 for support).

The amendments add no new matter.

The Rejection of Claims 1-9, 11, and 12 under 35 U.S.C. § 103

The final Office Action maintains the rejections of claims 1-4, 6-9, 11 and 12 as being obvious over the combination of Whittemore (U.S. Patent No. 5,106,697; “Whittemore”) and Baxter (U.S. Patent No. 4,915,766; “Baxter”). The Office Action further combines Whittemore and Baxter with Detlefsen *et al.* (U.S. Patent No. 5,057,591; “Detlefsen”), Walser *et al.* (U.S. Patent No. 5,234,747; “Walser”), and Park *et al.* (U.S. Patent No. 6,569,279; “Park”) to maintain the rejections of claims 5 and 12. Applicants respectfully traverse these rejections insofar as they apply to claims 1-9, 11, and 12 as amended.

Independent claim 1 and its dependent claims 2-9, 11, and 12 are directed to a method for making laminated veneer lumber (LVL) from a plurality of wood veneers by applying an adhesive onto a wood veneer mating surface. The adhesive comprises both a thermosetting phenol-aldehyde resin and a ketone-aldehyde resin cure promoter. The thermosetting phenol-aldehyde resin has a recited degree of advancement or polymerization, and in particular a number average molecular weight (M_n) of at least about 450, a weight average molecular weight (M_w) of at least about 2000, and a Z-average molecular weight (M_z) of at least about 6000. Additionally, the wood veneers have a recited level of dryness, and in particular an average moisture content of less than about 10% by weight for the plurality of veneers.

The primary references Whittemore and Baxter are directed to adhesives for plywood having, for example, 3-5 veneer layers. See Whittemore at col. 8, lines 40-41 and Baxter at col. 11, lines 5-6. The ordinary skilled artisan, however, would have been well aware of a number of considerations specific to the thicker, LVL product manufacture. Such considerations include the problems of weak bond formation and even delamination, associated with glue line dryout in LVL manufacture from dry veneers. These problems in LVL manufacture are exacerbated by

using the relatively advanced phenolic resins, having the claimed M_n , M_w , and M_z values.

Thus, for the detailed reasons given in Applicants' response dated December 21, 2006 there would have been no expectation that adhesive characteristics taught in Whittemore and Baxter as being advantageous with respect to **plywood**, could successfully overcome the art-recognized difficulties associated with LVL. Nevertheless, to advance prosecution, claim 1 has now been amended to even better distinguish the claimed LVL adhesives over the prior art plywood adhesives. These amendments include, in particular, the recitation of "a ketone-aldehyde cure promoter that is present in an amount from about 2% to about 15% by weight of the combined amounts of said phenol-aldehyde resin and said ketone-aldehyde resin."

None of the applied references Whittemore, Baxter, Detlefsen, Walser, and Park describes or even suggests this claimed amount of cure promoter, in combination with the recited phenolic resin. The Baxter reference in fact teaches, in the case of plywood, using about 10 to 50% acetone resin¹ and preferably between about 20-30%. Col. 6, lines 12-20. Moreover, nothing in the prior art would have suggested modifying Baxter to arrive at the **significantly lower** range of added ketone-aldehyde cure promoter, as claimed.

With respect to amended claim 11, Applicants respectfully submit that Baxter **expressly teaches away** from the addition of a ketone-aldehyde resin cure promoter in the recited amount "from about 3% to about 9% by weight." In particular, as stated in Baxter,

[i]f less than about 10% acetone resin is used, the cure characteristics of the adhesive normally are not sufficiently altered from that of the phenolic resin alone, while using more than about 50% acetone resin tends to degrade the plywood's adhesive bond.

Col. 6, lines 14-19 (emphasis added).

¹ equivalent to 0.11 to 1 parts by weight, per part by weight of the phenolic resin, disclosed in claim 1 of Baxter

This teaching away in the art amounts essentially to a *per se* demonstration of lack of *prima facie* obviousness. *In re Dow Chemical Co.*, 837 F.2d 469, 5 USPQ2d 1529 (Fed. Cir. 1988); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Nielson*, 816 F.2d 1567 2 USPQ2d 1525 (Fed. Cir. 1987).

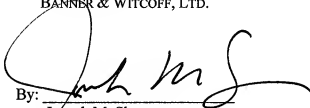
To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 985, 180 U.S.P.Q. 580, 583 (C.C.P.A. 1974) (emphasis added). Amended independent claim 1 (as well as its dependent claims 2-9, 11, and 12) recite methods of making LVL using an adhesive composition comprising i) a thermosetting phenol-aldehyde resin and ii) a ketone-aldehyde resin. The ketone-aldehyde cure promoter is present “in an amount from about 2% to about 15% by weight of the combined amounts of said phenol-aldehyde resin and said ketone-aldehyde cure promoter.” Because Whittemore, Baxter, Detlefsen, Walser, and Park all fail to describe or even suggest at least this claimed feature, combined with the required phenolic resin, the pending claims are patentable over these references.

Reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are respectfully requested.

CONCLUSION

In view of the above amendments and remarks, all pending claims of this application are believed to be in condition for allowance. A written indication of the same is respectfully requested. This response is believed to completely address all of the substantive issues raised in the Office Action mailed January 18, 2007.

Respectfully submitted,
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